

**WHAT IS CLAIMED IS:**

- 1 1. An electric heating/warming composite fabric article, comprising:  
2 a fabric layer having an inner surface and an outer surface,  
3 a barrier layer disposed at said inner surface of said fabric layer, said barrier layer  
4 having an inner surface and an outer surface, and  
5 an electric heating/warming element comprising a flexible, electricity-conducting  
6 film, the element disposed between said outer surface of said barrier layer and said inner  
7 surface of said fabric layer, the heating/warming element being adapted to generate  
8 heating/warming when connected to a power source.
- 1 2. The electric heating/warming composite fabric article of claim 1, wherein said  
2 electric heating/warming element is disposed upon said outer surface of said barrier layer.
- 1 3. The electric heating/warming composite fabric article of claim 1, wherein said  
2 outer surface of said barrier layer is secured at least adjacent to said inner surface of said  
3 fabric layer.
- 1 4. The electric heating/warming composite fabric article of claim 2, wherein said  
2 outer surface of said barrier layer is secured upon said inner surface of said fabric layer.
- 1 5. The electric heating/warming composite fabric article of claim 1, wherein said  
2 electric heating/warming element is stretchable.
- 1 6. The electric heating/warming composite fabric article of claim 1, wherein said  
2 fabric layer is hydrophobic.
- 1 7. The electric heating/warming composite fabric article of claim 1, wherein said  
2 fabric layer is hydrophilic.



1 8. The electric heating/warming composite fabric article of claim 1, wherein said  
2 barrier layer is micro-porous hydrophobic.

1 9. The electric heating/warming composite fabric article of claim 9, wherein said  
2 barrier layer is nonporous hydrophilic.

1 10. The electric heating/warming composite fabric article of claim 1, wherein said  
2 barrier layer is nonporous hydrophilic.

1 11. The electric heating/warming composite fabric article of claim 1, wherein said  
2 barrier layer is formed of poly urethane.

1 12. The electric heating/warming composite fabric article of claim 1, wherein said  
2 barrier layer is formed of poly tetrafluoroethylene (PTFE).

1 13. The electric heating/warming composite fabric article of claim 1, wherein said  
2 barrier layer is resistant to passage of air and water droplets and permeable to water  
3 vapor.

1 14. The electric heating/warming composite fabric article of claim 1, wherein said  
2 electric heating/warming element is washable, non-swelling and hydrophobic.

1 15. The electric heating/warming composite fabric article of claim 1, wherein said  
2 electric heating/warming element is resistant to stiffening and cold crack.

1 16. The electric heating/warming composite fabric article of claim 1, wherein said  
2 electric heating/warming element has resistivity in the range of about  $100 (1 \times 10^2)$  ohm-  
3 cm to  $0.000001 (1 \times 10^{-6})$  ohm-cm.

1 17. The electric heating/warming composite fabric article of claim 1, wherein said  
2 electricity-conducting film comprises synthetic resin.



1 18. The electric heating/warming composite fabric article of claim 18, wherein said  
2 electricity-conducting film further comprises conductive particles.

1 19. The electric heating/warming composite fabric article of claim 19, wherein said  
2 conductive particles comprises at least one of silver and graphite.

1 20. A method of forming an electric heating/warming composite fabric article,  
2 comprising:  
3 providing a fabric layer having an inner surface and an outer surface and a barrier  
4 layer having an inner surface and an outer surface,  
5 applying an electricity-conducting paste upon the outer surface of the barrier layer  
6 in a predetermined pattern of an electric circuit,  
7 joining the inner surface of the fabric layer to the outer surface of the barrier  
8 layer, and  
9 curing the electricity-conducting paste to form an electric heating/warming  
10 element of a flexible, electricity-conducting film defining an electric circuit upon the  
11 outer surface of the barrier layer, the electric heating/warming element being adapted for  
12 connection to a power source, thereby to generate heating/warming.

1 21. The method of claim 20, wherein, during the step of curing, the electricity-  
2 conducting paste is cured to form a stretchable film defining the electric circuit.

1 22. The method of claim 20, further comprising a step of incorporating the electric  
2 heating/warming composite fabric article into an article of apparel.

1 23. The method of claim 22 wherein the article of apparel is one of a jacket, a  
2 sweater, a hat, a glove, a shirt, pants, a sock, a boot, and a shoe.

1 24. The method of claim 20, further comprising a step of incorporating the electric  
2 heating/warming composite fabric article into a home furnishing textile article.



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1 25. The method of claim 24 wherein the home furnishing textile article is one of a  
2 blanket, a throw and a seat warmer.

1 26. The method of claim 20, further comprising a step of connecting the electric  
2 heating/warming element to a power source, thereby to generate heating/warming.

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